

Release notes for ENDF/B Development n-098_Cf_249
evaluation



April 26, 2017

- **fizcon** Warnings:

1. Level scheme has degenerate levels. ENDF format forbids this, but physics allows it.
MAT=9852, MF= 3, MT= 58 (1): Degenerate levels

```
ERROR(S) FOUND IN MAT=9852, MF= 3, MT= 58
SECTIONS ARE NOT IN INCREASING LEVEL ENERGY ORDER AT MT = 58
```

- **fudge-4.0** Warnings:

1. Missing a channel with a particular angular momenta combination
resonances / resolved / MultiLevel_BreitWigner (Error # 0): missingResonanceChannel

```
WARNING: Missing a channel with angular momenta combination L = 0, J = 3.0 and S = 3.0 for "capture"
```

2. Potential scattering hasn't converted, you need more L's!
resonances / resolved (Error # 1): potentialScatteringNotConverged

```
WARNING: Potential scattering hasn't converged by L=0 at E=70.0 eV, xs[0]/xs[0]=100.0% > 0.1%
```

3. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 0: total (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.56%
```

4. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 1 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission] [nubar]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

5. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 2 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission] [nubar]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (3.913505e-10) is too small
```

6. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 3 (total): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

7. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 4 (n + Cf249): / Form 'eval': / Component 0 (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

8. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 4 (n + Cf249): / Form 'eval': / Component 1 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

9. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 6 (n[multiplicity:'2'] + Cf248 + gamma): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (9.250819e-09) is too small

10. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 8 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission]): / Form 'eval': / Component 0 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

11. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 8 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission]): / Form 'eval': / Component 1 (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

12. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 10 (n + (Cf249_e1 -> Cf249 + gamma)): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (4.275311e-09) is too small

13. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 12 (n + (Cf249_e3 -> Cf249 + gamma)): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (2.420689e-09) is too small

14. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 13 (n + (Cf249_e4 -> Cf249 + gamma)): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (7.574388e-09) is too small

15. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 14 (n + (Cf249_e5 -> Cf249 + gamma)): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (2.395027e-09) is too small

16. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 15 (n + (Cf249_e6 -> Cf249 + gamma)): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (1.817123e-09) is too small
```

17. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 16 ($n + (Cf249_e7 \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (9.162573e-10) is too small
```

18. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 17 ($n + (Cf249_e8 \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (9.352186e-09) is too small
```

19. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 18 ($n + (Cf249_e9 \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (5.218847e-09) is too small
```

20. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 19 ($n + (Cf249_e10 \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (5.157451e-09) is too small
```

21. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 20 ($n + (Cf249_e11 \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (6.678698e-09) is too small
```

22. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 21 ($n + (Cf249_e12 \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (1.207987e-09) is too small
```

23. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 23 ($n + (Cf249_e14 \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (1.589976e-09) is too small
```

24. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 24 ($n + (Cf249_e15 \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (4.281164e-09) is too small
```

25. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 25 ($n + (Cf249_e16 \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (1.345246e-10) is too small

26. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 26 ($n + (Cf249_e17 \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (5.207978e-09) is too small

27. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 27 ($n + (Cf249_c \rightarrow Cf249 + \gamma)$): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

28. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 28 ($Cf250 + \gamma$): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

29. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 29 ($n + Cf249$ [angular distribution]): / Form 'eval': (Error # 1): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

30. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 30 ($n[multiplicity:energyDependent, emissionMode:'prompt'] + n[emissionMode:'delayed'] + \gamma$ [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

31. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 31 ($n[multiplicity:energyDependent, emissionMode:'prompt'] + n[emissionMode:'delayed'] + \gamma$ [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

32. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

Section 32 ($n[multiplicity:energyDependent, emissionMode:'prompt'] + n[emissionMode:'delayed'] + \gamma$ [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

33. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 33 (n/multiplicity:'energyDependent', emissionMode:'prompt'] + n/emissionMode:'6 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

- fudge-4.0 Errors:

1. Discrete levels are out of order
particles / Cf249 (Error # 0): Levels out of order

```
WARNING: Discrete level 8 is out of order
```

2. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_a / Multiplicity: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (300000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
```

3. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (300000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
```

```
WARNING: Domain doesn't match the cross section domain: (381057.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
```

```
WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
```

```
WARNING: Domain doesn't match the cross section domain: (170000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
```

```
... plus 21 more instances of this message
```

4. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_b / Multiplicity: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (381057.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
```

5. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_c / Multiplicity: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
```

6. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_d / Multiplicity: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (170000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
```

7. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_e / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

8. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_f / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (244054.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

9. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_g / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (244054.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

10. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_h / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (500000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

11. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_i / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (250000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

12. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_j / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (500000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

13. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_k / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (381057.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

14. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_l / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (500000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

15. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_m / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

16. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_n / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

17. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_o / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
18. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_p / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (418488.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
19. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_q / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
20. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_r / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (500000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
21. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_s / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (500000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
22. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_t / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
23. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_u / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
24. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_v / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
25. Energy range of data set does not match cross section range
reaction label 18: n + (Cf249_c -> Cf249 + gamma) / Product: Cf249_c / Decay product: gamma_w / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)

26. Energy range of data set does not match cross section range
 $reaction\ label\ 18: n + (Cf249_c \rightarrow Cf249 + gamma) / Product: Cf249_c / Decay\ product: gamma_x / Multiplicity: (Error\ \# 0): Domain\ mismatch\ (a)$
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
27. Energy range of data set does not match cross section range
 $reaction\ label\ 18: n + (Cf249_c \rightarrow Cf249 + gamma) / Product: Cf249_c / Decay\ product: gamma_y / Multiplicity: (Error\ \# 0): Domain\ mismatch\ (a)$
- WARNING: Domain doesn't match the cross section domain: (700000.0 -> 20000000.0) vs (110000.0 -> 20000000.0)
28. Calculated and tabulated Q values disagree.
 $reaction\ label\ 19: n[multiplicity:'2'] + Cf248 + gamma\ (Error\ \# 0): Q\ mismatch$
- WARNING: Calculated and tabulated Q-values disagree: -5755523.319488525 eV vs -5585460. eV!
29. Energy range of data set does not match cross section range
 $reaction\ label\ 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_a / Multiplicity: (Error\ \# 0): Domain\ mismatch\ (a)$
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)
30. Energy range of data set does not match cross section range
 $reaction\ label\ 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_a / Distribution: / uncorrelated - angular - isotropic: (Error\ \# 0): Domain\ mismatch\ (a)$
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)
31. Energy range of data set does not match cross section range
 $reaction\ label\ 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_b / Multiplicity: (Error\ \# 0): Domain\ mismatch\ (a)$
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)
32. Energy range of data set does not match cross section range
 $reaction\ label\ 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_b / Distribution: / uncorrelated - angular - isotropic: (Error\ \# 0): Domain\ mismatch\ (a)$
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)
33. Energy range of data set does not match cross section range
 $reaction\ label\ 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_c / Multiplicity: (Error\ \# 0): Domain\ mismatch\ (a)$
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)
34. Energy range of data set does not match cross section range
 $reaction\ label\ 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_c / Distribution: / uncorrelated - angular - isotropic: (Error\ \# 0): Domain\ mismatch\ (a)$
- WARNING: Domain doesn't match the cross section domain: (600000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)

35. Energy range of data set does not match cross section range
reaction label 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_d / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)

36. Energy range of data set does not match cross section range
reaction label 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)

37. Energy range of data set does not match cross section range
reaction label 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_e / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)

38. Energy range of data set does not match cross section range
reaction label 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_e / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)

39. Energy range of data set does not match cross section range
reaction label 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_f / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)

40. Energy range of data set does not match cross section range
reaction label 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_f / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)

41. Energy range of data set does not match cross section range
reaction label 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_g / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)

42. Energy range of data set does not match cross section range
reaction label 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_g / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (6500000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)

43. Energy range of data set does not match cross section range
reaction label 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_h / Multiplicity: (Error # 0): Domain mismatch (a)

WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)

44. Energy range of data set does not match cross section range
reaction label 19: n[multiplicity:'2'] + Cf248 + gamma / Product: gamma_h / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (7000000.0 -> 20000000.0) vs (5608080.0 -> 20000000.0)
45. Calculated and tabulated Q values disagree.
reaction label 20: n[multiplicity:'3'] + Cf247 + gamma (Error # 0): Q mismatch
- WARNING: Calculated and tabulated Q-values disagree: -12723698.4309082 eV vs -1.25536e7 eV!
46. Energy range of data set does not match cross section range
reaction label 20: n[multiplicity:'3'] + Cf247 + gamma / Product: gamma_a / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (13000000.0 -> 20000000.0) vs (12604500.0 -> 20000000.0)
47. Energy range of data set does not match cross section range
reaction label 20: n[multiplicity:'3'] + Cf247 + gamma / Product: gamma_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (13000000.0 -> 20000000.0) vs (12604500.0 -> 20000000.0)
48. Energy range of data set does not match cross section range
reaction label 20: n[multiplicity:'3'] + Cf247 + gamma / Product: gamma_b / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (13000000.0 -> 20000000.0) vs (12604500.0 -> 20000000.0)
49. Energy range of data set does not match cross section range
reaction label 20: n[multiplicity:'3'] + Cf247 + gamma / Product: gamma_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (13000000.0 -> 20000000.0) vs (12604500.0 -> 20000000.0)
50. Energy range of data set does not match cross section range
reaction label 20: n[multiplicity:'3'] + Cf247 + gamma / Product: gamma_c / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (13000000.0 -> 20000000.0) vs (12604500.0 -> 20000000.0)
51. Energy range of data set does not match cross section range
reaction label 20: n[multiplicity:'3'] + Cf247 + gamma / Product: gamma_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (13000000.0 -> 20000000.0) vs (12604500.0 -> 20000000.0)
52. Calculated and tabulated Q values disagree.
reaction label 21: n[multiplicity:'4'] + Cf246 + gamma (Error # 0): Q mismatch
- WARNING: Calculated and tabulated Q-values disagree: -18750125.60891724 eV vs -1.85801e7 eV!
53. Energy range of data set does not match cross section range
reaction label 21: n[multiplicity:'4'] + Cf246 + gamma / Product: gamma_a / Multiplicity: (Error # 0): Domain mismatch (a)

- WARNING: Domain doesn't match the cross section domain: (19500000.0 -> 20000000.0) vs (18655300.0 -> 20000000.0)
54. Energy range of data set does not match cross section range
reaction label 21: n[multiplicity:'4'] + Cf246 + gamma / Product: gamma_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (19500000.0 -> 20000000.0) vs (18655300.0 -> 20000000.0)
55. Energy range of data set does not match cross section range
reaction label 21: n[multiplicity:'4'] + Cf246 + gamma / Product: gamma_b / Multiplicity: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (19500000.0 -> 20000000.0) vs (18655300.0 -> 20000000.0)
56. Energy range of data set does not match cross section range
reaction label 21: n[multiplicity:'4'] + Cf246 + gamma / Product: gamma_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)
- WARNING: Domain doesn't match the cross section domain: (19500000.0 -> 20000000.0) vs (18655300.0 -> 20000000.0)
57. Calculated and tabulated Q values disagree.
reaction label 23: Cf250 + gamma (Error # 0): Q mismatch
- WARNING: Calculated and tabulated Q-values disagree: 6455084.210845947 eV vs 6625150. eV!
58. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 20: n + (Cf249_c -> Cf249 + gamma) total gamma multiplicity (Error # 0): summedMultiplicityMismatch
- WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 0.37%
59. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 21: n[multiplicity:'2'] + Cf248 + gamma total gamma multiplicity (Error # 0): summedMultiplicityMismatch
- WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 99.84%
60. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 22: n[multiplicity:'3'] + Cf247 + gamma total gamma multiplicity (Error # 0): summedMultiplicityMismatch
- WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 99.97%
61. Multiplicity does not match sum of linked product multiplicities!
multiplicitySum label 23: n[multiplicity:'4'] + Cf246 + gamma total gamma multiplicity (Error # 0): summedMultiplicityMismatch
- WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 99.99%
62. Calculated and tabulated Q values disagree.
fissionComponent label 0: /reactionSuite/fissionComponents/fissionComponent[@label='0'] (Error # 0): Q mismatch
- WARNING: Calculated and tabulated Q-values disagree: 232951138626.8187 eV vs 2.1173e8 eV!

63. Calculated and tabulated Q values disagree.
fissionComponent label 1: /reactionSuite/fissionComponents/fissionComponent[@label='1']
(Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 232951138626.8187 eV vs 2.1173e8 eV!
```

64. Calculated and tabulated Q values disagree.
fissionComponent label 2: /reactionSuite/fissionComponents/fissionComponent[@label='2']
(Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 232951138626.8187 eV vs 2.1173e8 eV!
```

65. Calculated and tabulated Q values disagree.
fissionComponent label 3: /reactionSuite/fissionComponents/fissionComponent[@label='3']
(Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 232951138626.8187 eV vs 2.1173e8 eV!
```

66. A covariance matrix was not positive semi-definite, so it has negative eigenvalues.
Section 29 (n + Cf249 [angular distribution]): / Form 'eval': /LegendreLValue L=1 vs 1 (Error # 0): Bad evs

```
WARNING: 10 negative eigenvalues! Worst case = -1.065472e-04
```

- njoy2012 Warnings:

1. In some evaluations, the partial fission reactions MT=19, 20, 21, and 38 are given in File 3, but no corresponding distributions are given. In these cases, it is assumed that MT=18 should be used for the fission neutron distributions.
heatr...prompt kerma (0): HEATR/hinit (3)

```
---message from hinit---mt19 has no spectrum
mt18 spectrum will be used.
```

2. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (1): HEATR/hinit (4)

```
---message from hinit---mf6, mt 16 does not give recoil za= 98248
one-particle recoil approx. used.
```

3. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (2): HEATR/hinit (4)

```
---message from hinit---mf6, mt 17 does not give recoil za= 98247
one-particle recoil approx. used.
```

4. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (3): HEATR/hinit (4)

```
---message from hinit---mf6, mt 37 does not give recoil za= 98246
one-particle recoil approx. used.
```

5. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (4): HEATR/hinit (4)

---message from hinit---mf6, mt 51 does not give recoil za= 98249
one-particle recoil approx. used.

6. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (5): HEATR/hinit (4)

---message from hinit---mf6, mt 52 does not give recoil za= 98249
one-particle recoil approx. used.

7. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (6): HEATR/hinit (4)

---message from hinit---mf6, mt 53 does not give recoil za= 98249
one-particle recoil approx. used.

8. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (7): HEATR/hinit (4)

---message from hinit---mf6, mt 54 does not give recoil za= 98249
one-particle recoil approx. used.

9. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (8): HEATR/hinit (4)

---message from hinit---mf6, mt 55 does not give recoil za= 98249
one-particle recoil approx. used.

10. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (9): HEATR/hinit (4)

---message from hinit---mf6, mt 56 does not give recoil za= 98249
one-particle recoil approx. used.

11. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (10): HEATR/hinit (4)

---message from hinit---mf6, mt 57 does not give recoil za= 98249
one-particle recoil approx. used.

12. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (11): HEATR/hinit (4)

---message from hinit---mf6, mt 58 does not give recoil za= 98249
one-particle recoil approx. used.

13. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (12): HEATR/hinit (4)

---message from hinit---mf6, mt 59 does not give recoil za= 98249
one-particle recoil approx. used.

14. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (13): HEATR/hinit (4)

---message from hinit---mf6, mt 60 does not give recoil za= 98249
one-particle recoil approx. used.

15. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (14): HEATR/hinit (4)

```
---message from hinit---mf6, mt 61 does not give recoil za= 98249
one-particle recoil approx. used.
```

16. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (15): HEATR/hinit (4)

```
---message from hinit---mf6, mt 62 does not give recoil za= 98249
one-particle recoil approx. used.
```

17. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (16): HEATR/hinit (4)

```
---message from hinit---mf6, mt 63 does not give recoil za= 98249
one-particle recoil approx. used.
```

18. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (17): HEATR/hinit (4)

```
---message from hinit---mf6, mt 64 does not give recoil za= 98249
one-particle recoil approx. used.
```

19. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (18): HEATR/hinit (4)

```
---message from hinit---mf6, mt 65 does not give recoil za= 98249
one-particle recoil approx. used.
```

20. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (19): HEATR/hinit (4)

```
---message from hinit---mf6, mt 66 does not give recoil za= 98249
one-particle recoil approx. used.
```

21. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (20): HEATR/hinit (4)

```
---message from hinit---mf6, mt 67 does not give recoil za= 98249
one-particle recoil approx. used.
```

22. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (21): HEATR/hinit (4)

```
---message from hinit---mf6, mt 91 does not give recoil za= 98249
one-particle recoil approx. used.
```

23. Recoil is not given, so one-particle recoil approximation used.
heatr...prompt kerma (22): HEATR/hinit (4)

```
---message from hinit---mf6, mt102 does not give recoil za= 98250
photon momentum recoil used.
```

24. There is a problem with the fission energy release.
heatr...prompt kerma (23): HEATR/nheat (3)

---message from nheat---changed q from 2.117300E+08 to 2.028140E+08
for mt 18